

Commonwealth of Pennsylvania
DEPARTMENT OF PUBLIC INSTRUCTION
Harrisburg

Manual of Instruction

COURSE 10
INCREASING BEEF PRODUCTION

Rural War Production Training Program

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Prepared under the authority of the State Board for Vocational
Education by the Department of Rural Education,
The Pennsylvania State College



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PREFACE

Course 10, Increasing Beef Production, is one of a series of courses which have been prepared in the "Food for Victory" program. The objective has been to set forth in brief form the phases of the beef industry considered pertinent to the immediate problem of Increasing Beef Production in Pennsylvania.

This manual is organized into five sections:

- I. SUGGESTED COURSE CALENDAR
- II. INTRODUCTION
- III. SUGGESTED LESSON OUTLINES
- IV. SUGGESTED REFERENCE MATERIAL
 - Books (A)
 - Bulletins and Circulars (B)
 - Visual Aids (C)
- V. SUGGESTED APPROVED PRACTICES WHICH SHOULD DEVELOP FROM THE COURSE

The manual was prepared by Russell B. Dickerson, Itinerant Teacher-Trainer, Specialist in Young and Adult Farmer Instruction, Department of Rural Education, The Pennsylvania State College. The preparation was directed by H. C. Fetterolf, Chief, Agricultural Education, State Department of Public Instruction, and Henry S. Brunner, Head, Department of Rural Education, The Pennsylvania State College.

Special recognition is given to Professor F. L. Bentley, Head, Department of Animal Husbandry, The Pennsylvania State College, for invaluable assistance and guidance in setting up the suggested lesson outlines and in deciding upon the most current references pertinent to "Increasing Beef Production."

I. SUGGESTED COURSE CALENDAR

Lesson Number	Name of Job	Date of Meeting
1	Phases and Adaptations of Beef Production	
2	The Winter Management of the Breeding Herd	
3	The Summer Management of the Breeding Herd	
4	Purchasing Feeder Cattle	
5	Food Requirements of Fattening Cattle	
6	Rations for Fattening Cattle	
7	Feeding Fattening Cattle	
8	Managing the Fattening Herd	
9	Controlling and Preventing Diseases and Parasites of Beef Cattle	
10	Marketing Fat Cattle	

II. INTRODUCTION

This manual was prepared as a guide to teachers and supervisors in conducting instruction with young and adult farmers in the OSYA "Food for Victory" program. It is designed to facilitate more effective preparation by the teachers undertaking to meet the emergency need through commodity courses.

The ten (10) suggested lesson topics or jobs were selected after careful analysis of the whole field of beef production, in conference with Professor F. L. Bentley. The lesson outlines are purely suggestive and it is expected that each lesson will be modified to meet local conditions.

In many instances jobs other than the ten included herein will be considered important enough in certain sections of the commonwealth to be included along with, or instead of, some of those listed. It is expected also that more than one meeting will be necessary to give satisfactory instruction in some jobs.

The aims and the problems for study and discussion set up in each of the ten lesson outlines are considered applicable to the respective jobs but they are by no means considered all-inclusive. If any or all of the suggested problems for study and discussion are incorporated into a similar course of study the suggested references will be found helpful to the busy teacher. They are offered for the express purpose of bringing teacher efficiency to its best.

The reference materials suggested on pp. 18-19 are considered pertinent to the immediate problem of Increasing Beef Production. It is advised that at least one copy of each should be available for easy reference. It is assumed that a variety of references pertinent to Increasing Beef Production are already on hand in most schools. They will probably include texts, bulletins, charts, film strips and others, and they may furnish a large part of the reference material needed. It is important however, to use the most current references for approved practices in meeting emergency problems. The bulletins of The Pennsylvania Experiment Station are prepared for Pennsylvania conditions and they generally are the most reliable sources available.

For the convenience of the teacher, the suggested reference materials on pp. 18-19, are given by key designation as follows: Books (A), Bulletins and Circulars (B), and Visual Aids (C). In preparing a lesson on any one job, the teacher will find specific references to the different problems suggested. For example: (1), if the reference is A-1, p. 7, it refers to material on page 7 of the first book listed; the material found there is considered pertinent to the problem suggested; (2), if the reference is B-3, it refers to

bulletin No. 3 on the list and implies that the content of the entire bulletin is pertinent to the problem; (3), if C-6 is given as a reference it will refer to item No. 6 in the Visual Aids list.

The suggested approved practices which should develop from the course are set forth on p. 20 as guides to the teacher. During each lesson certain conclusions should be reached which should result in the adoption of approved practices by individual farmers. These will constitute the basis for the program of follow-up instruction.

Teachers who plan to organize and conduct a course in Increasing Beef Production are urged to follow the suggestions given in another manual of instruction in this series entitled, "Suggestions to Teachers and Supervisors for the Development and Conduct of Agricultural Commodity Courses".¹

The suggestions set forth in that manual were prepared for the purpose of aiding individuals in organizing and conducting Agricultural Commodity Courses in the Rural War Production Training program. The manual includes the following sections:

- I. Objectives of Courses in the Increased Production of Farm Commodities.
- II. Things To Do Before Organizing a Commodity Course.
- III. Form for Surveying Out-of-School Rural and Non-Rural Persons.
- IV. Suggested Teacher Preparation.
- V. A Suggested Teaching Plan Using the Conference Procedure.
- VI. The Importance of Current References.
- VII. Providing Follow-Up of Instruction.

¹ Rural War Production Training, State Department of Public Instruction, Harrisburg, Pa.

III. SUGGESTED LESSON OUTLINES

JOB 1. PHASES AND ADAPTATIONS OF BEEF PRODUCTION

- A. Teaching aims—To develop the ability of the farmer—
 - 1. To discover the phases of beef production best adapted to individual situations.
 - 2. To analyze the factors that influence opportunities to increase profitable beef production in this area.
- B. References for this lesson—(see key list on pp. 18-19)
 - 1. (A)—1, 2, 6, 7
 - 2. (B)—2, 3, 11, 12, 13, 14, 15, 17, 18, 20, 21, 22, 23, 24
 - 3. (C)—1, 13, 14, 15, 16
- C. Suggested problems for study and discussion—
 - 1. The beef industry in the United States, in Pennsylvania and locally. B-18; A-7, Ch. II; B-21; B-17
 - 2. Breeding and rearing calves. A-1, p. 70; B-2
 - 3. Growing of stockers. A-1, p. 71
 - 4. Fattening cattle for market. A-1, p. 72; C-1
 - 5. Baby beef production. A-1, p. 74; A-1, Ch. 31
 - 6. Producing breeding stock. B-12; A-2, Ch. 9
 - a. Choosing a breed. A-1, p. 109; B-11; C-15; C-16
 - b. Selecting and judging individuals within the breed. A-1, pp. 110-119; B-3
 - c. Establishing a breeding program. A-1, pp. 124-133; B-13; B-14
 - (1) Age at which to breed heifers
 - (2) The breeding season
 - (3) Spring and fall calves
 - (4) Junior and senior calves
 - (5) Methods of mating—number of cows per bull
 - 7. Producing dual purpose cattle. A-1, p. 75; B-11; A-2, Ch. 14; A-6, p. 863
 - 8. Producing beef for home consumption. B-15; B-13; C-13
 - 9. Financing the beef enterprise.
 - a. Secure credit and credit information from
 - (1) The local bank
 - (2) The production credit association
 - (3) The farm security administration
 - (4) The livestock exchange

JOB 2. THE WINTER MANAGEMENT OF THE BREEDING HERD

- A. Teaching aims—To develop the ability of the farmer—
1. To provide the amount and kind of shelter essential for beef production
 2. To feed and care for the beef herd intelligently and economically.
- B. References for this lesson—(see key list on pp. 18-19)
1. (A)—1, 4
 2. (B)—16
 3. (C)
- C. Suggested problems for study and discussion—
1. Winter management. A-4, p. 431
 2. Shelter and equipment. A-1, p. 161; A-1, Ch. 35
 3. Winter rations for the breeding herd. A-1, p. 163; A-4, p. 1045; A-4, p. 1065
 - a. Roughages—A-1, pp. 163-170
 - (1) Dry
 - (2) Succulent
 - (3) Winter pasture
 - b. Concentrates. A-1, p. 171
 - c. Emergency winter-rations. A-1, p. 172
 - d. Winter gains of beef cows. A-1, p. 172; A-4, p. 476; A-4, p. 685
 4. Winter care of nursing calves. A-1, p. 174; B-16; A-4, p. 501
 5. Winter management of bulls. A-1, p. 175

**JOB 3. THE SUMMER MANAGEMENT OF THE
BREEDING HERD**

- A. Teaching aims—To develop the ability of the farmer—
1. To maintain the herd on pasture
 2. To provide the necessary shade, water, salt, and supplementary feeds during the pasture season.
- B. References for this lesson—(see key list on pp. 18-19)
1. (A)—1, 4
 2. (B)—9
 3. (C)
- C. Suggested problems for study and discussion—
1. Summer management. A-4, p. 431
 2. Pasture. A-1, p. 177; B-9; A-4, p. 925
 - a. Kinds of pasture
 - b. Length of the grazing season
 - c. Area of pasture per animal
 - d. Gains made by cows on pasture
 3. Calving in pasture. A-1, p. 183
 4. Separating cows and calves on pasture. A-1, p. 183
 5. Supplementary feed for cows on pasture. A-1, p. 184
 6. Supplementary pasture crops. A -1, p. 186
 7. Shade and water. A-1, p. 187
 8. Salt. A-1, p. 188
 9. Protection from flies. A-1, p. 188
 10. Breeding on pasture. A-1, p. 189
 11. Summer management without pasture. A-1, p. 189

JOB 4. PURCHASING FEEDER CATTLE

- A. Teaching aims—To develop the ability of the farmer—
 - 1. To buy feeders when the market conditions are most favorable.
 - 2. To buy feeders that are best adapted to individual needs with respect to breed, age, grade, and sex.
 - 3. To buy feeders where they are economically obtainable for efficient beef production.
- B. References for this lesson—(see key list on pp. 18-19)
 - 1. (A)—1, 2, 3
 - 2. (B)—1, 4, 7
 - 3. (C)
- C. Suggested problems for study and discussion—
 - 1. When to buy feeders. B-1, p. 5; A-2, p. 110; A-2, Ch. 7
 - a. Availability—higher in the spring
 - b. Dependent upon grass or dry-lot feeding conditions.
 - 2. What to buy. B-1, p. 4; A-2, pp. 113-123
 - a. Importance of breed, age, grade, and sex. A-1, Ch. 17; A-1, Ch. 18; A-3, p. 642; B-4; B-7
 - 3. Where to buy feeders. B-1, p. 6; A-2, p. 109
 - a. Availability

JOB 5. FOOD REQUIREMENTS OF FATTENING CATTLE

- A. Teaching aims—To develop the ability of the farmer—
1. To determine the food requirements of fattening cattle.
 2. To recognize the importance of roughage, concentrates and water for fattening cattle.
 3. To analyze the best utilization of home-grown grains and roughages for fattening cattle.
- B. References for this lesson—(see key list on pp. 18-19)
1. (A)—1, 3, 4
 2. (B)
 3. (C)—11
- C. Suggested problems for study and discussion—
1. General requirements. A-4, p. 492; A-4, p. 450; A-4, p. 519; A-4, p. 418; A-4, p. 405; A-4, p. 3; A-4, p. 469
 2. Protein requirements. A-3, p. 624
 3. Mineral requirements. A-3, p. 628
 - a. Salt
 - b. Calcium
 - c. Phosphorous
 4. Vitamin requirements. A-3, p. 631; C-11
 5. Roughage is needed. A-3, p. 632; A-1, Ch. 21; A-4, p. 956
 6. Water is essential. A-3, p. 632
 7. Amount of concentrates for fattening cattle. A-3, p. 632; A-4, p. 1017; A-4, p. 1065

JOB 6. RATIONS FOR FATTENING CATTLE

- A. Teaching aims—To develop the ability of the farmer—
 - 1. To balance rations for fattening cattle.
 - 2. To select balanced rations adapted to individual feeding situations.
 - 3. To analyze the supplement requirements of rations composed of home-grown grains and roughages.
- B. References for this lesson—(see key list on pp. 18-19)
 - 1. (A)—1, 3, 4
 - 2. (B)—1, 5, 8, 9
 - 3. (C)—4, 5, 6
- V. Suggested problems for study and discussion—
 - 1. Grains and other concentrates low in protein. A-3, pp. 657-668; A-1, Ch. 19; C-4
 - 2. Protein supplements. A-3, pp. 668-676; C-5
 - 3. Legume hay and other dry roughages. A-3, pp. 677-687; C-6
 - 4. Succulent roughages. A-3, pp. 687-695; A-1, Ch. 24; A-1, Chs. 25-26; B-8; C-6
 - 5. Pasture for fattening cattle. A-1, Ch. 27; B-5; B-9; A-4, p. 925
 - 6. Suggested rations. A-3, Appendix, Table III, p. 1005; A-3, Appendix Table IV, pp. 1019-1021; B-1, p. 6

JOB 7. FEEDING FATTENING CATTLE

- A. Teaching aims—To develop the ability of the farmer—
 - 1. To pasture fattening cattle for economical beef production.
 - 2. To feed cattle of different ages for economical beef production.
 - 3. To follow the most efficient methods of preparing rations for fattening cattle.
- B. References for this lesson—(see key list on pp. 18-19)
 - 1. (A)—1, 3, 4
 - 2. (B)—5, 6, 10
 - 3. (C)
- C. Suggested problems for study and discussion—
 - 1. Methods of feeding. B-10; A-3, p. 639; A-4, p. 544
 - 2. Fattening cattle on pasture. A-3, pp. 712-715; B-5
 - 3. Fattening calves for baby beef. A-3, p. 717; B-6
 - 4. Finishing cattle as fat yearlings. A-3, p. 718
 - 5. Finishing cattle as 2-year olds or older. A-3, p. 719
 - 6. Excessive fattening does not pay. A-3, p. 646
 - 7. Cost of fattening cattle. A-3, p. 723
 - 8. The preparation of feeds for beef cattle. A-1, Ch. 29; A-3, pp. 59-64

JOB 8. MANAGING THE FATTENING HERD

- A. Teaching aims—To develop the ability of the farmer—
1. To give close supervision and routine care of the fattening herd.
 2. To recognize management practices from the point of view of economy and increased production.
 3. To discover ways and means of carrying out adapted management practices with the fattening cattle.
- B. References for this lesson—(see key list on pp. 18-19)
1. (A)—1, 3, 5
 2. (B)—
 3. (C)—
- C. Suggested problems for study and discussion—
1. Buildings and equipment for the care of fattening cattle. A-1, Ch. 35
 - a. Shelter—good ventilation
 - b. Paved feed lots. A-3, p. 653
 - c. Feedbunks.
 2. The eye of the master fattens his cattle. A-3, p. 727
 - a. Regularity in feeding is important, A-3, p. 726
 - b. Close supervision
 - (1) Remove bloated steers or steers off-feed from the herd and treat individually.
 - c. Kindness pays large dividends.
 - (1) Greater gains are made when animals are permitted to lie down and remain undisturbed.
 3. A constant supply of fresh water is essential. A-3, p. 2; A-3, p. 84; A-3, p. 632
 4. Exercise is a factor of importance in management. A-3, p. 652
 - a. Room enough to move around comfortably.
 5. Bedding is important, A-1, p. 98
 6. Sanitation is essential. A-5, p. 510
 7. Pigs following steers. A-3, p. 728
 8. Shrinkage, preparation for market. A-3, p. 728

JOB 9. CONTROLLING AND PREVENTING DISEASES

AND PARASITES OF BEEF CATTLE

- A. Teaching aims—To develop the ability of the farmer—
1. To observe cattle closely to detect symptoms of disease.
 2. To prevent and treat some of the common ailments of beef cattle.
 3. To recognize the importance of keeping livestock healthy.
- B. References for this lesson—(see key list on pp. 18-19)
1. (A)—1, 5
 2. (B)—19, 25
 3. (C)—2, 3, 12
- C. Suggested problems for study and discussion—
1. Fundamentals of disease and insect control. A-5, pp. 4-16; A-5, Part I, p. 109
 - a. Losses caused by animal diseases and parasites. A-5, p. 4; A-5, pp. 109-116
 - b. Causes of diseases. A-5, p. 5; A-5, pp. 117-137
 - c. Protective mechanisms against disease. A-5, p. 7; A-5, pp. 138-154
 - d. Artificial insemination and disease control. A-5, p. 10; A-5, pp. 175-178
 - e. Disinfection and disinfectants. A-5, p. 11; A-5, pp. 179-187; B-19
 - f. Federal and state regulatory activities in animal disease control. A-5, p. 14; A-5, pp. 209-226; B-25
 - g. Fighting disease with knowledge. A-5, p. 15; A-5, pp. 227-235
 2. Important diseases common to several species.
 - a. Tuberculosis. A-5, p. 16; A-5 pp. 237-249
 - b. Anthrax. A-5, p. 17; A-5, pp. 250-261; C-12
 - c. Parasites and insects affecting livestock. A-5, p. 20
 - (1) Cattle grubs. A-5, p. 51; A-5, pp. 612-619
 - (2) Cattle lice. A-5, p. 53; A-5, pp. 631-635
 - (3) The stablefly. A-5, p. 52; A-5, pp. 620-625
 - (4) Bacterial infections and parasites common to man and animals. A-5, p. 22

- (5) Plants poisonous to livestock. A-5, p. 27; A-5, pp. 355-373
- (6) Nutritional diseases of farm animals. A-5, p. 54; A-5, pp. 645-672
- 3. Common diseases and ailments of beef cattle. A-1, Ch. 36
 - a. Bang's disease (Brucellosis). A-5, p. 40; A-5, pp. 501-511; C-2
 - b. Blackleg. A-5, p. 43; A-5, pp. 523-525; C-3
 - c. Shipping fever (Hemorrhagic Septicemia). A-5, p. 43; A-5, pp. 526-532
 - d. Lumpy jaw (Actinomycosis). A-5, p. 549
 - e. Pneumonia. A-5, p. 561
 - f. Choke. A-5, p. 562
 - g. Bloat in cattle. A-5, p. 667
 - h. Pink eye. A-5, p. 556
- 4. Miscellaneous ailments of beef cattle.
 - a. Common warts. A-5, p. 543
 - b. Ringworm. A-5, p. 447; A-1, p. 541
 - c. Wounds. A-5, p. 854
 - d. Founder. A-1, p. 525
 - e. Foul feet. A-1, p. 524
 - f. Impaction, constipation and indigestion. A-1, p. 528
 - g. Scours. A-1, p. 531

JOB 10. MARKETING FAT CATTLE

- A. Teaching aims—To develop the ability of the farmer—
 - 1. To become familiar with the market classes and grades of fat cattle.
 - 2. To interpret and intelligently utilize the information contained in the market reports.
 - 3. To effectively prepare cattle for market.
- B. References for this lesson—(see key list on pp. 18-19)
 - 1. (A)—1, 2, 7
 - 2. (B)—17, 21
 - 3. (C)—7, 8, 9, 10
- C. Suggested problems for study and discussion—
 - 1. The market classes.
 - a. What determines a market class? A-2, p. 124; B-17, p. 5
 - 2. The market grades. A-7, Ch. 14
 - a. What determines a market grade? A-2, p. 124; B-17, p. 5
 - b. Grade description of slaughter cattle. C-7; C-8; C-9
 - 3. Market values of the various classes. A-2, p. 143
 - 4. What information is essential in a useful market report? C-10
 - a. Interpreting market reports. Daily paper, radio, special market releases from State and Federal Bureau of Markets. B-21
 - 5. Methods of marketing
 - a. Local market—packing house, drover. B-17, p. 24
 - b. Cooperative auction. A-7, Ch. 10; B-17, p. 24
 - c. Commission marketing. A-7, Ch. 9
 - 6. Knowing when to market is important. A-1, p. 466; A-7, Ch. 15
 - a. Market news.
 - 7. Preparing cattle for market. A-1, p. 467
 - 8. Transportation to market—cooperative shipping
 - a. No. of cattle per car or truck
 - b. Billing
 - c. Shrinkage—what it is and the factors that are responsible for it. A-1, p. 469; A-7, Ch. 12
 - 9. Losses sustained during shipment. A-1, p. 472; A-7, Ch. 13
 - a. Claims for loss and damage.
 - 10. Cost of marketing. A-1, p. 474; A-7, p. 345
 - 11. Cold storage lockers. A-7, Ch. 21

IV. SUGGESTED REFERENCE MATERIAL

Books (A)

1. Snapp, Beef Cattle, J. Wiley & Sons., Inc., New York, 1939
2. Vaughan, Types and Market Classes of Livestock, College Book Co., Columbus, Ohio, 1942
3. Morrison, Feeds and Feeding, Morrison Pub. Co., Ithaca, N. Y. 1937
4. U.S.D.A., Food and Life, Yearbook of Agriculture, 1939
5. U.S.D.A. Keeping Livestock Healthy, Yearbook of Agriculture, 1942
6. U.S.D.A., Yearbook of Agriculture, 1936
7. Dowell and Bjorka, Livestock Marketing, The McGraw-Hill Book Co., New York, 1941

Bulletins and Circulars (B)

1. Buying and Feeding Beef Cattle, Cir. 201, The P.S.C.
2. Beef Production on The Farm, F. B. 1592, U.S.D.A.
3. Judging Beef Cattle, F. B. 1068, U.S.D.A.
4. Market Classes and Grades of Feeder and Stocker Cattle, Cir. 505, U.S.D.A.
5. Effect of Pasture on Grade of Beef, Bul. 475, U. of Ill., Urbana
6. Fattening Beef Calves, Special Bul. 280, Mich. State College, E. Lansing, Mich.
7. Teaching the Grading of Feeder and Stocker Steers in Vocational Agriculture Classes, Leaflet 4, U.S.D. of the Interior, Office of Education, Washington, D. C.
8. Alfalfa-Molasses Silage As a Roughage for Fattening Steers, Bul. 410, The Pennsylvania State College
9. A Pasture Handbook, M. P. 194, U.S.D.A.
10. Feeding Cattle for Beef, F. B. 1549, U.S.D.A.
11. Beef Cattle Breeds for Beef and for Beef and Milk, F. B. 1779, U.S.D.A.
12. Essentials of Animal Breeding, F. B. 1167, U.S.D.A.
13. Livestock for Small Farms, F. B. 1753, U.S.D.A.
14. Artificial Insemination in Livestock Breeding, Cir. 567, U.S.D.A.
15. Beef on the Farm. Slaughtering, Cutting, Curing. F. B. 1415, U.S.D.A.
16. The Beef Calf; It's Growth and Development. F. B. 1135, U.S.D.A.
17. The Livestock and Meat Packing Industry. Swift and Co., Chicago, Ill.

18. Uses of the 1940 Census Data in Schools, Monograph, U. S. Office of Education.
19. The Disinfection of Stables. F. B. 954, U.S.D.A.
20. Beef Outlook Material for Pa. Dept. of Agrl. Ec., The P.S.C.
21. Crops and Markets, U.S.D.A.
22. The Livestock and Wool Situation. Bu. of Agrl. Ec., U.S.D.A.
23. The Agricultural Situation. Bureau of Agrl. Econ., U.S.D.A.
24. Agriculture's Wartime Production Capacity. An Interbureau Committee Report, U.S.D.A.
25. Animal Industry Regulation No. 538, Governing Movement of Livestock into and within Pennsylvania. Dept. of Agr., Harrisburg

Visual Aids (C)

1. Wilson's Meat and By-Product Chart of Cattle—also Beef Cuts Chart—Armour, Cudahy, Swift, Wilson & Co., or National Livestock and Meat Board, Chicago, Ill.
2. Bang's Disease Chart—Livestock Health Series, Bureau of Animal Industry, U.S.D.A.
3. Blackleg Chart—Livestock Health Series, Bu. of An. In., U.S.D.A.
4. Samples of grain for beef cattle.
5. Samples of protein supplements for beef cattle.
6. Samples of hay and silage.
7. Poster: U. S. Grades of slaughter cows. Bu. of Mkts., U.S.D.A.
8. Poster: U. S. Grades of slaughter heifers. Bu. of Mkts., U.S.D.A.
9. Poster: U. S. Grs. of slaughter steers. Bu. of Mkts., U.S.D.A.
10. Market News Service—Daily papers (especially Philadelphia and Pittsburgh) for livestock quotations in Lancaster and Pittsburgh Markets.
11. Summary of Vitamins Required by Four-Footed Animals and Poultry, Standard Brands, Inc., 595 Madison Ave., at 57th St., N. Y.
12. Anthrax, Livestock Health Series Chart, Bu. of An. In. U.S. D.A.
13. Preservation of Meats and Poultry in Frozen-Food Lockers, Ext. Bul. 223, Michigan State College, East Lansing, Mich.
14. Beef Outlook Charts, U.S.D.A.
15. Material from Beef Breed Associations. See De Laval Diary.
16. Beef Breed Journals.
17. List and Index of Agricultural Research Bulletins, Agrl. Research Bul. I, Swift & Co., Chicago, Ill.

V. SUGGESTED APPROVED PRACTICES WHICH SHOULD DEVELOP FROM THE COURSE

1. Select the phase of beef production best adapted to home farm conditions.
2. For a breeding herd, choose well-bred individuals of good type.
3. Provide adequate shelter and equipment for the beef herd during winter.
4. During the pasture season, provide improved pasture to insure economical gains.
5. Provide ample shade, fresh water, salt, and supplementary feeds during the pasture season.
6. For fattening stock, select feeders that are best adapted to individual needs with respect to breed, age, grade, and sex.
7. Purchase feeder cattle in accordance with availability, prices, and feeding conditions for profitable gains.
8. Feed the breeding herd and fattening cattle in accordance with their specific requirements.
9. Supply minerals, vitamins, and water in accordance with requirements.
10. Feed cattle of different ages in accordance with their requirements.
11. Provide protein supplements in accordance with protein requirements.
12. Feed rations balanced with respect to concentrates and roughages.
13. Use home-grown grains and roughages as much as possible.
14. Feed fattening cattle regularly at all times.
15. Give close supervision and attention to the routine care of the fattening herd.
16. Prevent and control the common diseases and parasites of beef cattle.
17. Treat common ailments of beef cattle in accordance with recognized sound practices and, if necessary, under supervision of the local veterinarian.
18. Market fat cattle in accordance with their class and grade.
19. Recognize the demands of the market with respect to quality and condition.



Aaro



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